



PATENT APPLICATION  
Mo-5980-D  
HCSP70

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICATION OF	)	
ASTRID GORGE ET AL	)	GROUP NO.: 1754
SERIAL NUMBER: 10/737,000	)	
FILED: DECEMBER 16, 2003	)	EXAMINER:
	)	STUART L.HENDRICKSON
TITLE: SPHEROIDALLY AGGLOMERATED	)	
BASIC COBALT (II) CARBONATE	)	
AND SPHEROIDALLY	)	
AGGLOMERATED COBALT (II)	)	
HYDROXIDE, PROCESS FOR	)	
THEIR PRODUCTION AND THEIR	)	
USE	)	

**DECLARATION UNDER 37 CFR 1.132**

I, Armin Olbrich, residing at D-38723 Seesen, declare as follows

1. I have the following technical education and experience:
  - a) I am a Chemist having studied at University of Göttingen, from Okt 1977 to July 1988.
  - b) I received the degree Dipl. Chem. at Göttingen in the year 1985 and the degree Dr. rer. nat at Göttingen in the year 1988
  - c) I am presently employed at H.C. Starck GmbH and have been so employed since 1988, and I am working in the research department since 1992, in particular with regard to the development of novel Hydroxides, Oxides and Carbonates of Ni, Co, Cu, Zn, Mn.

2. I am familiar with the patent system and am named inventor on numerous patents. I assisted in the preparation of the current application. I have read the current office action and the previous office actions and the references cited in the actions, including SU '570, Provance, et al., U.S. Patent 4,317,749, and JP 90-168385 (abstract).

3. In the process of the present invention, agglomerated cobalt (II) carbonate having a spheroidal secondary structure and an average agglomerate diameter of 3  $\mu\text{m}$  to 50  $\mu\text{m}$  is reacted in suspension with aqueous alkaline liquors or ammonia to produce agglomerated cobalt (II) hydroxide also having a spheroidal secondary structure and an average agglomerate diameter of 3  $\mu\text{m}$  to 50  $\mu\text{m}$ .

4. The SU '570 patent is cited for a supposed disclosure of a process of preparing cobalt hydroxide by treating basic cobalt carbonate (BCC) with hydroxide. It should be noted that the temperature used in this patent is 18-25°C (page 3, line 8), is lower than the reaction temperature used in the present invention (40°-100°C). The process described in SU '570 will yield a water-containing cobalt carbonate consisting of spicular crystals of a few millimetres in size which can easily be distinguished visually from the spheroidal agglomerates of the present invention. When further processed to different products, a fine mud will result, also consisting of spicular crystals. The particles of SU '570 will not have a spheroidal secondary structure. Additionally, the material formed in the process of SU '570 is unlikely to be the same as the material in the present invention, and the chemical identity of the material is speculative.

5. The suspension of the present invention is not equivalent to a paste with the addition of water, and a defined particle shape and size cannot be achieved merely by the addition of water to a paste. In the process of the present invention, a defined particle size distribution is achieved by use of a continuous process and independent control of each of three process parameters: 1) residence time; 2) concentration of solid; and 3) mechanical energy introduced into the suspension. This control is necessary due to different parameters of the different reactors used for the production. It is not possible to control these parameters in the production of a paste. Additionally, the amount of mechanical energy required is inherently too high if a paste is used, and spheroidal particles with defined particle size distributions cannot be achieved when working with a paste. The disclosure of SU '570 says nothing to one skilled in the art regarding how to achieve the particle shape and size of the present invention.

6. In Provance, it is evident no oxide is used. Moreover, if cobalt hydroxide or cobalt hydroxy-carbonate would be used in Provance, the layers would severely suffer when the material is fired according to Provance because water and/or carbon dioxide will be created and evaporate in a sudden burst. The end product that was fired at 500 to 1000°C according to Provance cannot contain any cobalt hydroxide because it will be calcined to cobalt oxide at this temperature. In any event, the relevance of Provance to the present invention is questionable; it is a rather remote reference dealing solely with cobalt oxide and its use to produce conducting structures. An artisan would surely not take this reference into account for a process according to the invention.

7. JP-168385 also does not teach anything to one skilled in the art regarding how to achieve the particle shape and size of the present invention.

8. In principle, an educt of a certain particle size will yield a product of a similar particle size. However, none of the educts disclosed in any of the cited references are said to be spherical, which is an important feature in the present invention. Consequently, none of the products will have a spherical secondary structure.

9. Based on the above information and analysis, it is my well considered opinion that the presently claimed invention is not obvious in view of any of the cited references, taken alone or in combination.

The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing therefrom.

Signed at Goslar, this 20. day of June, 2006.

A handwritten signature in cursive script, appearing to read 'A. Olbrich', is written over a horizontal line.

Armin Olbrich